

ABSTRACT OF THE DISCLOSURE

This disclosure relates to a novel process for atomizing a liquid material or a mixture of liquid materials. More specifically, this disclosure advances the art by utilizing the inertial forces created in an elevated acceleration environment to further miniaturize and enhance the characteristics of particles resulting from atomization. The key to this disclosure is to subject a melt material to an elevated acceleration and pass a fluid over the surface of the melt. The purpose of the elevated acceleration is to elevate the relative importance of gravitational forces in the melt thus miniaturizing any gravity influenced disturbance. This elevated acceleration environment leads to miniaturization of gravitationally dependent phenomena thus leading to smaller particle creation. The purpose of the atomizing fluid is to impart kinetic energy onto the melt thereby causing disturbances and to act as a heat transfer media to cool the particles. In other words, this disclosure teaches not only utilizing bursting bubbles, surface waves, and splashes to create fine particles by purposely introducing gas flow on the liquid material(s) to be atomized but further enhancing the process by facilitating that these material(s) are simultaneously at elevated acceleration. The novel aspects of this disclosure significantly enhance the physical characteristics of the resulting particles, by allowing smaller particles to be produced, by cooling the particles more rapidly and by reducing contamination threats by avoiding physical contact between the material(s) being atomized and any refractive materials.